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HW 5 Due on March 5th at 4:30 pm. Name:_____

If you have a question about anything, you can write it here or just send me an email at rweigel@gmu.edu.

1. Array short-hand notation

(Covered in Iteration#An_additional_short-hand)

For each of the following blocks of statements, type them onto the MATLAB command line, hit enter, and inspect the results. (If you don't see the command line, select "Desktop->Command Window".)

```
clear;
z = 1;
for i = [1:2:9]
     z = z+1
end
```

```
clear;
z = 1;
for i = [1:2:10]
     z = z+1
end
```

```
clear;
z = 1;
for i = [1:2:11]
     z = z+1
end
```

Based on your observations, predict the final value of `z` that will be displayed will be when you enter

```
clear;
z = 1;
for i = [1:2:12]
     z = z+1
end
```

Suppose that you were asked to write in words how the notation `[a:b:c]` should be expanded out to a list of numbers. Previously I have stated that `[a:b:c]` means "start at `a`, increment in steps of `b` until you reach `c`".

How would you amend this statement to take into account the behavior that you just observed? (If you are stumped, write out what you are thinking. You'll get credit for this if you provide evidence that you put some thought into the question. I'll show all of the answers in class and we'll decide on which one is the best.)

2. Double For Loop

Suppose that you wrote out the following program in long-hand notation.

```
clear;
z = 1;
for i = [1:50000000000]
  for j = [0:49999999990]
     z = z+1;
  end
end
```

How many times would you need to write the statement `z = z+1;`?

3. Double For Loop

(Covered in Iteration and IterationNested)

Write out the following in long-hand notation. What will be the last value assigned to `b`? (i.e., if you entered `b` on the command line, what number would be displayed)

```
clear;
for i = [1,3,5]
  for j = [2,4]
     z = i+j;
     b = 2*z;
  end
end
```

4. Creating a Matrix Using a Double For Loop

(Covered in A3)

Write out the following in long-hand notation.

```
clear;
for i = [1,2,3]
  for j = [1,2]
    M(i,j) = i;
  end
end
M
```

Write out the following in long-hand notation. (Note that `M(i,j)` has been changed to `M(j,i)`.)

```
clear;
for i = [1,2,3]
  for j = [1,2]
    M(j,i) = i;
  end
end
M
```

5. Triple For Loop

(Covered in A3)

When the following is executed, describe what will be shown on the screen. (Note that the line `counter = counter + 1` does not have a semi-colon a the end.).

```
clear;
counter = 1;
for i = [1:32]
  for j = [1:32]
    for k = [1:2]
      counter = counter + 1
    end
  end
end
```

Note that `counter` is the name of a variable, similar to when we use `z` or `p`. The program could have been written using a variable named `z`, but for this example, the variable name `counter` is more appropriate - its final value will the same as the number of times that the expression `counter=counter+1` would be written if you wrote the program out long-hand.